

A knock sounded at the door of Dr. Bird's private laboratory in the Bureau of Standards. The famous scientist paid no attention to the interruption but bent his head lower over the spectroscope with which he was working. The knock was repeated with a quality of quiet insistence upon recognition. The Doctor smothered an exclamation of impatience and strode over to the door and threw it open to the knocker.

"Oh, hello, Carnes," he exclaimed as he recognized his visitor. "Come in and sit down and keep your mouth shut for a few minutes. I am busy just now but I'll be at liberty in a little while."

"There's no hurry, Doctor," replied Operative Carnes of the United States Secret Service as he entered the room and sat on the edge of the Doctor's desk. "I haven't got a case up my sleeve this time; I just came in for a little chat."

"All right, glad to see you. Read that latest volume of the *Zeitschrift* for a while. That article of Von Beyer's has got me guessing, all right."

Carnes picked up the indicated volume and settled himself to read. The Doctor bent over his apparatus. Time and again he made minute adjustments and gave vent to muttered exclamations of annoyance at the results he obtained. Half an hour later he rose from his chair with a sigh and turned to his visitor.

"What do you think of Von Beyer's alleged discovery?" he asked the operative.

"It's too deep for me, Doctor," replied the operative.

"All that I can make out of it is that he claims to have discovered a new element named 'lunium,' but hasn't been able to isolate it yet. Is there anything remarkable about that? It seems to me that I have read of other new elements being discovered from time to time."

"There is nothing remarkable about the discovery of a new element by the spectroscopic method," replied Dr. Bird. "We know from Mendeleff's table that there are a number of elements which we have not discovered as yet, and several of the ones we know were first detected by the spectroscope. The thing

which puzzles me is that so brilliant a man as Von Beyer claims to have discovered it in the spectra of the moon. His name, lunium, is taken from Luna, the moon."

"Why not the moon? Haven't several elements been first discovered in the spectra of stars?"

"Certainly. The classic example is Lockyer's discovery of an orange line in the spectra of the sun in 1868. No known terrestrial element gave such a line and he named the new element which he deduced helium, from Helos, the sun. The element helium was first isolated by Ramsey some twenty-seven years later. Other elements have been found in the spectra of stars, but the point I am making is that the sun and the stars are incandescent bodies and could be logically expected to show the characteristic lines of their constituent elements in their spectra. But the moon is a cold body without an atmosphere and is visible only by reflected light. The element, lunium, may exist in the moon, but the manifestations which Von Beyer has observed must be, not from the moon, but from the source of the reflected light which he

spectro-analyzed."

"You are over my depth, Doctor."

"I'm over my own. I have tried to follow Von Beyer's reasoning and I have tried to check his findings.

Twice this evening I thought that I caught a momentary glimpse on the screen of my fluoroscope of the ultra-violet line which he reports as characteristic of lunium, but I am not certain. I haven't been able to photograph it yet. He notes in his article that the line seems to be quite impermanent and fades so rapidly that an accurate measurement of its wave-length is almost impossible. However, let's drop the subject. How do you like your new assignment?"

"Oh, it's all right. I would rather be back on my old work."

"I haven't seen you since you were assigned to the Presidential detail. I suppose that you fellows are pretty busy getting ready for Premier McDougal's visit?"

"I doubt if he will come," replied Carnes soberly.

"Things are not exactly propitious for a visit of that sort just now."

Dr. Bird sat back in his chair in surprise.

"I thought that the whole thing is arranged. The press seems to think so, at any rate."

"Everything is arranged, but arrangements may be cancelled. I wouldn't be surprised to hear that they were."

"Carnes," replied Dr. Bird gravely, "you have either said too much or too little. There is something more to this than appears on the surface. If it is none of my business, don't hesitate to tell me so and I'll forget what you have said, but if I can help you any, speak up."

Carnes puffed meditatively at his pipe for a few minutes before replying.

"It's really none of your business. Doctor," he said at

length, "and yet I know that a corpse is a chatterbox compared to you when you are told anything in confidence, and I really need to unload my mind. It has been kept from the press so far; but I don't know how long it can be kept muzzled. In strict confidence, the President of the United State acts as though he were crazy."

"Quite a section of the press has claimed that for a long time," replied Dr. Bird, with a twinkle in his eye.

"I don't mean crazy in that way, Doctor, I mean *really* crazy. Bugs! Nuts! Bats in his belfry!"

Dr. Bird whistled softly.

"Are you sure, Carnes?" he asked.

"As sure as may be. Both of his physicians think so. They were non-committal for a while, especially as the first attack waned and he seemed to recover, but when his second attack came on more violently than the first and the President began to act queerly, they had to take the Presidential detail into their

confidence. He has been quietly examined by some of the greatest psychiatrists in the country, but none of them have ventured on a positive verdict as to the nature of the malady. They admit, of course, that it exists, but they won't classify it. The fact that it is intermittent seems to have them stopped. He was bad a month ago but he recovered and became, to all appearances, normal for a time. About a week ago he began to show queer symptoms again and now he is getting worse daily. If he goes on getting worse for another week, it will have to be announced so that the Vice-President can take over the duties of the head of the government."

"What are the symptoms?"

"The first we noticed was a failing of his memory. Coupled with this was a restlessness and a habit of nocturnal prowling. He tosses continually on his bed and mutters and at times leaps up and rages back and forth in his bedchamber, howling and raging. Then he will calm down and compose himself and go to sleep, only to wake in half an hour and go through the same performance. It is pretty ghastly for the men on night

guard."

"How does he act in the daytime?"

"Heavy and lethargic. His memory becomes a complete blank at times and he talks wildly. Those are the times we must guard against."

"Overwork?" queried the Doctor.

"Not according to his physicians. His physical health is splendid and his appetite unusually keen. He takes his exercise regularly and suffers no ill health except for a little eye trouble."

Dr. Bird leaped to his feet.

"Tell me more about this eye trouble, Carnes," he demanded.

"Why, I don't know much about it, Doctor. Admiral Clay told me that it was nothing but a mild opthalmia which should yield readily to treatment. That was when he told me to see that the shades of the



President's study were partially drawn to keep the direct sunlight out."

"Ophthalmia be sugared! What do his eyes look like?"

"They are rather red and swollen and a little bloodshot. He has a tendency to shut them while he is talking and he avoids light as much as possible. I hadn't noticed anything peculiar about it."

"Carnes, did you ever see a case of snow blindness?"

The operative looked up in surprise.

"Yes, I have. I had it myself once in Maine. Now that you mention it, his case does look like snow blindness, but such a thing is absurd in Washington in August."

Dr. Bird rummaged in his desk and drew out a book, which he consulted for a moment.

"Now, Carnes," he said, "I want some dates from you and I want them accurately. Don't guess, for a great deal may depend on the accuracy of your answers."

When was this mental disability on the part of the President first noticed?"

Carnes drew a pocket diary from his coat and consulted it.

"The seventeenth of July," he replied. "That is, we are sure, in view of later developments, that that was the date it first came on. We didn't realize that anything was wrong until the twentieth. On the night of the nineteenth the President slept very poorly, getting up and creating a disturbance twice, and on the twentieth he acted so queerly that it was necessary to cancel three conferences."

Dr. Bird checked off the dates on the book before him and nodded.

"Go on," he said, "and describe the progress of the malady by days."

"It got progressively worse until the night of the twenty-third. The twenty-fourth he was no worse, and on the twenty-fifth a slight improvement was noticed.

He got steadily better until, by the third or fourth of August, he was apparently normal. About the twelfth he began to show signs of restlessness which have increased daily during the past week. Last night, the nineteenth, he slept only a few minutes and Brady, who was on guard, says that his howls were terrible. His memory has been almost a total blank today and all of his appointments were cancelled, ostensibly because of his eye trouble. If he gets any worse, it probably will be necessary to inform the country as to his true condition."

When Carnes had finished, Dr. Bird sat for a time in concentrated thought.

"You did exactly right in coming to me, Carnes," he said presently. "I don't think that this is a job for a doctor at all—I believe that it needs a physicist and a chemist and possibly a detective to cure him. We'll get busy."

"What do you mean, Doctor?" demanded Carnes. "Do you think that some exterior force is causing the President's disability?"

"I think nothing, Carnes," replied the Doctor grimly, "but I intend to know something before I am through. Don't ask for explanations: this is not the time for talk, it is the time for action. Can you get me into the White House to-night?"

"I doubt it, Doctor, but I'll try. What excuse shall I give? I am not supposed to have told you anything about the President's illness."

"Get Bolton, your chief, on the phone and tell him that you have talked to me when you shouldn't have. He'll blow up, but after he is through exploding, tell him that I smell a rat and that I want him down here at once with *carte blanche* authority to do as I see fit in the White House. If he makes any fuss about it, remind him of the fact that he has considered me crazy several times in the past when events showed that I was right. If he won't play after that, let me talk to him."

"All right, Doctor," replied Carnes as he picked up the scientist's telephone and gave the number of the home of the Chief of the Secret Service. "I'll try to

bully him out of it. He has a good deal of confidence in your ability."

Half an hour later the door of Dr. Bird's laboratory opened suddenly to admit Bolton.

"Hello, Doctor," exclaimed the Chief, "what the dickens have you got on your mind now? I ought to skin Carnes alive for talking out of turn, but if you really have an idea, I'll forgive him. What do you suspect?"

"I suspect several things, Bolton, but I haven't time to tell you what they are. I want to get quietly into the White House as promptly as possible."

"That's easy," replied Bolton, "but first I want to know what the object of the visit is."

"The object is to see what I can find out. My ideas are entirely too nebulous to attempt to lay them out before you just now. You've never worked directly with me on a case before, but Carnes can tell you that I have my own methods of working and that I won't

spill my ideas until I have something more definite to go on than I have at present."

"The Doctor is right, Chief," said Carnes. "He has an idea all right, but wild horses won't drag it out of him until he's ready to talk. You'll have to take him on faith, as I always do."

Bolton hesitated a moment and then shrugged his shoulders.

"Have it your own way, Doctor," he said. "Your reputation, both as a scientist and as an unraveller of tangled skeins, is too good for me to boggle about your methods. Tell me what you want and I'll try to get it."

"I want to get into the White House without undue prominence being given to my movements, and listen outside the President's door for a short time. Later I will want to examine his sleeping quarters carefully and to make a few tests. I may be entirely wrong in my assumptions, but I believe that there is something there that requires my attention."

"Come along," said Bolton. "I'll get you in and let you listen, but the rest we'll have to trust to luck on. You may have to wait until morning."

"We'll cross that bridge when we get to it," replied the Doctor. "I'll get a little stuff together that we may need."

In a few moments he had packed some apparatus in a bag and, taking up it and an instrument case, he followed Bolton and Carnes down the stairs and out onto the grounds of the Bureau of Standards.

"It's a beautiful moon, isn't it?" he observed.

Carnes assented absently to the Doctor's remark, but Bolton paid no attention to the luminous disc overhead, which was flooding the landscape with its mellow light.

"My car is waiting," he announced.

"All right, old man, but stop for a moment and admire this moon," protested the Doctor. "Have you ever seen

a finer one?"

"Come on and let the moon alone," snorted Bolton.

"My dear man, I absolutely refuse to move a step until you pause in your headlong devotion to duty and pay the homage due to Lady Luna. Don't you realize, you benighted Christian, that you are gazing upon what has been held to be a deity, or at least the visible manifestation of deity, for ages immemorial? Haven't you ever had time to study the history of the moon-worshipping cults? They are as old as mankind, you know. The worship of Isis was really only an exalted type of moon worship. The crescent moon, you may remember, was one of her most sacred emblems."

Bolton paused and looked at the Doctor suspiciously.

"What are you doing—pulling my leg?" he demanded.

"Not at all, my dear fellow. Carnes, doesn't the sight of the glowing orb of night influence you to pious meditation upon the frailty of human life and the insignificance of human ambition?"



"Not to any very great degree," replied Carnes dryly.

"Carnesy, old dear, I fear that you are a crass materialist. I am beginning to despair of ever inculcating in you any respect for the finer and subtler things of life. I must try Bolton. Bolton, have you ever seen a finer moon? Remember that I won't move a step until you have carefully considered the matter and fully answered my question."

Bolton looked first at the Doctor, then at Carnes, and finally he looked reluctantly at the moon.

"It's a fine one," he admitted, "but all full moons look large on clear nights at this time of the year."

"Then you *have* studied the moon?" cried Dr. Bird with delight. "I was sure—"

He broke off his speech suddenly and listened. From a distance came the mournful howl of a dog. It was answered in a moment by another howl from a different direction. Dog after dog took up the chorus until the air was filled with the melancholy wailing of

the animals.

"See, Bolton," remarked the Doctor, "even the dogs feel the chastening influence of the Lady of Night and repent of the sins of their youth and the follies of their manhood, or should one say doghood? Come along. I feel that the call of duty must tear us away from the contemplation of the beauties of nature."

He led the way to Bolton's car and got in without further words. A half-hour later, Bolton led the way into the White House. A word to the secret service operative on guard at the door admitted him and his party, and he led the way to the newly constructed solarium where the President slept. An operative stood outside the door.

"What word, Brady?" asked Bolton in a whisper.

"He seems worse, sir. I doubt if he has slept at all. Admiral Clay has been in several times, but he didn't do much good. There, listen! The President is getting up again."

From behind the closed door which confronted them came sounds of a person rising from a bed and pacing the floor, slowly at first, and then more and more rapidly, until it was almost a run. A series of groans came to the watchers and then a long drawn out howl. Bolton shuddered.

"Poor devil!" he muttered.

Dr. Bird shot a quick glance around.

"Where is Admiral Clay?" he asked.

"He is sleeping upstairs. Shall I call him?"

"No. Take me to his room."

The President's naval physician opened the door in response to Bolton's knock.

"Is he worse?" he demanded anxiously.

"I don't think so, Admiral," replied Bolton. "I want to introduce you to Dr. Bird of the Bureau of Standards.

He wants to talk with you about the case."

"I am honored, Doctor," said the physician as he grasped the scientist's outstretched hand. "Come in. Pardon my appearance, but I was startled out of a doze when you knocked. Have a chair and tell me how I can serve you."

Dr. Bird drew a notebook from his pocket.

"I have received certain dates in connection with the President's malady from Operative Carnes," he said, "and I wish you to verify them."

"Pardon me a moment, Doctor," interrupted the Admiral, "but may I ask what is your connection with the matter? I was not aware that you were a physician or surgeon."

"Dr. Bird is here by the authority of the secret service," replied Bolton. "He has no connection with the medical treatment of the President, but permit me to remind you that the secret service is responsible for the safety of the President and so have a right to

demand such details about him as are necessary for his proper protection."

"I have no intention in obstructing you in the proper performance of your duties, Mr. Bolton," began the Admiral stiffly.

"Pardon me, Admiral," broke in Dr. Bird, "it seems to me that we are getting started wrong. I suspect that certain exterior forces are more or less concerned in this case and I have communicated my suspicions to Mr. Bolton. He in turn brought me here in order to request from you your cooperation in the matter. We have no idea of demanding anything and are really seeking help which we believe that you can give us."

"Pardon me, Admiral," said Bolton. "I had no intention of angering you."

"I am at your service, gentlemen," replied Admiral Clay. "What information did you wish, Doctor?"

"At first merely a verification of the history of the case as I have it."

Dr. Bird read the notes he had taken down from Carnes and the Admiral nodded agreement.

"Those dates are correct," he said.

"Now, Admiral, there are two further points on which I wish enlightenment. The first is the opthalmia which is troubling the patient."

"It is nothing to be alarmed about as far as symptoms go, Doctor," replied the Admiral. "It is a rather mild case of irritation, somewhat analogous to granuloma, but rather stubborn. He had an attack several weeks ago and while it did not yield to treatment as readily as I could have wished, it did clear up nicely in a couple of weeks and I was quite surprised at this recurrent attack. His sight is in no danger."

"Have you tried to connect this opthalmia with his mental aberrations?"

"Why no, Doctor, there is no connection."

"Are you sure?"

"I am certain. The slight pain which his eyes give him could never have such an effect upon the mind of so able and energetic a man as he is."

"Well, we'll let that pass for the moment. The other question is this: has he any form of skin trouble?"

The Admiral looked up in surprise.

"Yes, he has," he admitted. "I had mentioned it to no one, for it really amounts to nothing, but he has a slight attack of some obscure form of dermatitis which I am treating. It is affecting only his face and hands."

"Please describe it."

"It has taken the form of a brown pigmentation on the hands. On the face it causes a slight itching and subsequent peeling of the affected areas."

"In other words, it is acting like sunburn?"

"Why, yes, somewhat. It is not that, however, for he

has been exposed to the sun very little lately, on account of his eyes."

"I notice that he is sleeping in the new solarium which was added last winter to the executive mansion. Can you tell me with what type of glass it is equipped?"

"Yes. It is not equipped with glass at all, but with fused quartz."

"When did he start to sleep there?"

"As soon as it was completed."

"And all the time the windows have been of fused quartz?"

"No. They were glazed at first, but the glass was removed and the fused quartz substituted at my suggestion about two months ago, just before this trouble started."

"Thank you, Admiral. You have given me several things to think about. My ideas are a little too



nebulous to share as yet but I think that I can give you one piece of very sound advice. The President is spending a very restless night. If you would remove him from the solarium and get him to lie down in a room which is glazed with ordinary glass, and pull down the shades so that he will be in the dark, I think that he will pass a better night."

Admiral Clay looked keenly into the piercing black eyes of the Doctor.

"I know something of you by reputation, Bird," he said slowly, "and I will follow your advice. Will you tell me why you make this particular suggestion?"

"So that I can work in that solarium to-night without interruption," replied Dr. Bird. "I have some tests which I wish to carry out while it is still dark. If my results are negative, forget what I have told you. If they yield any information, I will be glad to share it with you at the proper time. Now get the President out of that solarium and tell me when the coast is clear."

The Admiral donned a dressing gown and stepped out of the room. He returned in fifteen minutes.

"The solarium is at your disposal, Doctor," he announced. "Shall I accompany you?"

"If you wish," assented Dr. Bird as he picked up his apparatus and strode out of the room.

In the solarium he glanced quickly around, noting the position of each of the articles of furniture.

"I presume that the President always sleeps with his head in this direction?" he remarked, pointing to the pillow on the disturbed bed.

The Admiral nodded assent. Dr. Bird opened the bag which he had packed in his laboratory, took out a sheet of cardboard covered with a metallic looking substance, and placed it on the pillow. He stepped back and donned a pair of smoked glasses, watching it intently. Without a word he took off the glasses and handed them to the Admiral. The Admiral donned them and looked at the pillow. As he did so an

exclamation broke from his lips.

"That plate seems to glow," he said in an astonished voice.

Dr. Bird stepped forward and laid his hand on the pillow. He was wearing a wrist watch with a radiolite dial. The substance suddenly increased its luminescence and began to glow fiercely, long luminous streamers seeming to come from the dial. The Doctor took away his hand and substituted a bottle of liquid for the plate on the pillow. Immediately the bottle began to glow with a phosphorescent light.

"What on earth is it?" gasped Carnes.

"Excitation of a radioactive fluid," replied the Doctor. "The question is, what is exciting it. Somebody get a stepladder."

While Bolton was gone after the ladder, the Doctor took from his bag what looked like an ordinary pane of glass.

"Take this, Carnes," he directed, "and start holding it over each of those panes of quartz which you can reach. Stop when I tell you to."

The operative held the glass over each of the panes in succession, but the Doctor, who kept his eyes covered with the smoked glasses and fastened on the plate which he had replaced on the pillow, said nothing. When Bolton arrived with the ladder, the process went on. One end and most of the front of the solarium had been covered before an exclamation from the Doctor halted the work.

"That's the one," he exclaimed. "Hold the glass there for a moment."



[Image description start: A black and white illustration from the story *The Ray of Madness*, by Sterner St. Paul Meek. The left half of the illustration shows only the foreground, with a blank white background, showing two characters standing near a bed. The right half of the drawing shows the background, revealing that the ceiling of the room is made of curved glass like a greenhouse. Carnes, also in a military uniform, is standing on a ladder, holding one of the panes of glass, while Bolton, the assistant, stands at the base holding the ladder steady with one hand. Dr. Bird, in a suit, stands at the head of the bed,

with a suitcase and box of tools at his feet as he leans over the pillow, upon which rests a shining square of glass. Admiral Clay, in a long military uniform, stands at the foot of the bed, and has his hands in his pockets as he watches Dr. Bird. Image description end.]

Hurriedly he removed the plate from the pillow and replaced the phial of liquid. There was only a very feeble glow.

"Good enough," he cried. "Take away the glass, but mark that pane, and be ready to replace it when I give the word."

From the instrument case he had brought he took out a spectroscope. He turned back the mattress and mounted it on the bedstead.

"Cover that pane," he directed.

Carnes did so, and the Doctor swung the receiving tube of the instrument until it pointed at the covered pane. He glanced into the eyepiece, and then held a

tiny flashlight for an instant opposite the third tube.

"Uncover that pane," he said.

Carnes took down the glass plate and the Doctor gazed into the instrument. He made some adjustments.

"Are you familiar with spectroscopy, Admiral?" he asked.

"Somewhat."

"Take a squint in here and tell me what you see."

The Admiral applied his eye to the instrument and looked long and earnestly.

"There are some lines there, Doctor," he said, "but your instrument is badly out of adjustment. They are in what should be the ultra-violet sector, according to your scale."

"I forgot to tell you that this is a fluoroscopic

spectroscope designed for the detection of ultra-violet lines," replied Dr. Bird. "Those lines you see are ultra-violet, made visible to the eye by activation of a radioactive compound whose rays in turn impinge on a zinc blende sheet. Do you recognize the lines?"

"No, I don't."

"Small wonder; I doubt whether there are a dozen people who would. I have never seen them before, although I recognize them from descriptions I have read. Bolton, come here. Sight along this instrument and through that plate of glass which Carnes is holding and tell me what office that window belongs to."

Bolton sighted as directed up at the side of the State, War and Navy Building.

"I can't tell exactly at this time of night, Doctor," he said, "but I'll go into the building and find out."

"Do so. Have you a flashlight?"



"Yes."

"Flash it momentarily out of each of the suspected windows in turn until you get an answering flash from here. When you do, flash it out of each pane of glass in the window until you get another flash from here. Then come back and tell me what office it is. Mark the pane so that we can locate it again in the morning."

"It is the office of the Assistant to the Adjutant General of the Army," reported Bolton ten minutes later.

"What is there in the room?"

"Nothing but the usual desks and chairs."

"I suspected as much. The window is merely a reflector. That is all that we can do for to-night, gentlemen. Admiral, keep your patient quiet and in a room with *glass* windows, preferably with the shades drawn, until further notice. Bolton, meet me here with Carnes at sunrise. Have a picked detail of ten men

standing by where we can get hold of them in a hurry. In the mean time, get the Chief of Air Service out of bed and have him order a plane at Langley Field to be ready to take off at 6 A. M. He is not to take off, however, until I give him orders to do so. Do you understand?"

"Everything will be ready for you, Doctor, but I confess that I don't know what it is all about."

"It's the biggest case you ever tackled, old man, and I hope that we can pull it off successfully. I'd like to go over it with you now, but I'll be busy at the Bureau for the rest of the night. Drop me off there, will you?"

At sunrise the next morning, Bolton met Dr. Bird at the entrance to the White House grounds.

"Where is your detail?" he asked.

"In the State, War and Navy Building."

"Good. I want to go to the solarium, put a light on the place where the President's pillow was last night, and

mark that pane of quartz we were looking through. Then we'll join the detail."

Dr. Bird placed the light and walked with Carnes across the White House grounds. Bolton's badge secured admission to the State, War and Navy Building for the party and they made their way to the office of the Assistant to the Adjutant General.

"Did you mark the pane of glass through which you flashed your light last night, Bolton?" asked the Doctor.

The detective touched one of the panes.

"Good," exclaimed the Doctor. "I notice that this window has hooks for a window washer's belt. Get a life belt, will you?"

When the belt was brought, the Doctor turned to Carnes.

"Carnes," he said, "hook on this life saver and climb out on the window ledge. Take this piece of apparatus

with you."

He handed Carnes a piece of apparatus which looked like two telescopes fastened to a base, with a screw adjustment for altering the angles of the barrels.

Carnes took it and looked at it inquiringly.

"That is what I was making at the Bureau last night," explained Dr. Bird. "It is a device which will enable me to locate the source of the beam which was reflected from this pane of glass onto the President's pillow. I'll show you how to work it. You know that when light is reflected the angle of reflection always equals the angle of incidence? Well, you place these three feet against the pane of glass, thus putting the base of the instrument in a plane parallel to the pane of glass. By turning these two knobs, one of which gives lateral and the other vertical adjustment, you will manipulate the instrument until the first telescope is pointing directly toward the President's pillow. Now notice that the two telescope barrels are fastened together and are connected to the knobs, so that when the knobs are turned, the scopes are

turned in equal and opposite amounts. When one is turned from its present position five degrees to the west, the other automatically turns five degrees to the east. When one is elevated, the other is correspondingly depressed. Thus, when the first tube points toward the pillow, the other will point toward the source of the reflected beam."

"Clever!" ejaculated Bolton.

"It is rather crude and may not be accurate enough to locate the source exactly, but at least it will give us a pretty good idea of where to look. Given time, a much more accurate instrument could have been made, but two telescopic rifle sights and a theodolite base were all the materials I could find to work with. Climb out, Carnesy, and do your stuff."

Carnes climbed out on the window and fastened the hooks of the life saver to the rings set in the window casings. He sat the base of the instrument against the pane of glass and manipulated the telescope knobs as Dr. Bird signalled from the inside. The scientist was hard to please with the adjustment, but at last the

cross hairs of the first telescope were centered on the light in the solarium. He changed his position and stared through the second tube.

"The angle is too acute and the distance too great for accuracy," he said with an air of disappointment. "The beam comes from the roof of a house down along Pennsylvania Avenue, but I can't tell from here which one it is. Take a look, Bolton."

The Chief of the Secret Service stared through the telescope.

"I couldn't be sure, Doctor," he replied. "I can see something on the roof of one of the houses, but I can't tell what it is and I couldn't tell the house when I got in front of it."

"It won't do to make a false move," said the Doctor. "Did you arrange for that plane?"

"It is waiting your orders at the field, Doctor."

"Good. I'll go up to the office of the Chief of Air

Service and get in touch with the pilot over the Chief's private line. There are some orders that I wish to give him and some signals to be arranged."

Dr. Bird returned in a few minutes.

"The plane is taking off now and will be over the city soon," he announced. "We'll take a stroll down the Avenue until we are in the vicinity of the house, and then wait for the plane. Carnes will take five of your men and go down behind the house and the rest of us will go in front. Which building do you think it is, Bolton?"

"About the fourth from the corner."

"All right, the men going down the back will take station behind the house next to the corner and the rest of us will get in front of the same building. When the plane comes over, watch it. If you receive no signal, go to the next house and wait for him to make a loop and come over you again. Continue this until the pilot throws a white parachute over. That is the signal that we are covering the right house. When you

get that signal, Carnes, leave two men outside and break in with the other three. Get that apparatus on the roof and the men who are operating it. Bolton and I will attack the front door at the same time. Does everybody understand?"

Murmurs of assent came from the detail.

"All right, let's go. Carnes, lead out with your men and go half a block ahead so that the two parties will arrive in position at about the same time."

Carnes left the building with five of the operatives. Dr. Bird and Bolton waited for a few minutes and then started down Pennsylvania Avenue, the five men of their squad following at intervals. For three-quarters of a mile they sauntered down the street.

"This should be it, Doctor," said Bolton.

"I think so, and here comes our plane."

They watched the swift scout plane from Langley Field swing down low over the house and then swoop



up into the sky again without making a signal. The party walked down the street one house and paused. Again the plane swept over them without sign. As they stopped in front of the next house a white parachute flew from the cockpit of the plane and the aircraft, its mission accomplished, veered off to the south toward its hangar.

"This is the place," cried Bolton. "Haggerty and Johnson, you two cover the street. Bemis, take the lower door. The rest come with me."

Followed closely by Dr. Bird and two operatives, Bolton sprinted across the street and up the steps leading to the main entrance of the house. The door was barred, and he hurled his weight against it without result.

"One side, Bolton," snapped Dr. Bird.

The diminutive Chief drew aside and Dr. Bird's two hundred pounds of bone and muscle crashed against the door. The lock gave and the Doctor barely saved himself from sprawling headlong on the hall floor. A

woman's scream rang out, and the Doctor swore under his breath.

"Upstairs! To the roof!" he cried.

Followed by the rest of the party, he sprinted up the stairway which opened before him. Just as he reached the top his way was barred by an Amazonian figure in a green bathrobe.

"Who th' divil arre yer?" demanded an outraged voice.

"Police," snapped Bolton. "One side!"

"Wan side, is it?" demanded the fiery haired Amazon.

"The divil a stip ye go until ye till me ye'er bizness.

Phwat th' divil arre yer doin' in th' house uv a rayspictable female at this hour uv th' marnin'?"

"One side, I tell you!" cried Bolton as he strove to push past the figure that barred the way.

"Oh, ye wud, wud yer, little mann?" demanded the Irishwoman as she grasped Bolton by the collar and

shook him as a terrier does a rat. Dr. Bird stifled his laughter with difficulty and seized her by the arm. With a heave on Bolton's collar she raised him from the ground and swung him against the Doctor, knocking him off his feet.

"Hilp! P'lice! Murther!" she screamed at the top of her voice.

"Damn it, woman, we're on—"

Dr. Bird's voice was cut short by the sound of a pistol shot from the roof, followed by two others. The Irishwoman dropped Bolton and slumped into a sitting position and screamed lustily. Bolton and Dr. Bird, with the two operatives at their heels, raced for the roof. Before they reached it another volley of shots rang out, these sounding from the rear of the building. They made their way to the upper floor and found a ladder running to a skylight in the roof. At the foot of the ladder stood one of Carnes' party.

"What is it, Williams?" demanded Bolton.

"I don't know, Chief. Carnes and the other two went up there, and then I heard shooting. My orders were to let no one come down the ladder."

As he spoke, Carnes' head appeared at the skylight.

"It's the right place, all right, Doctor," he called.

"Come on up, the shooting is all over."

Dr. Bird mounted the ladder and stepped out on the roof. Set on one edge was a large piece of apparatus, toward which the scientist eagerly hastened. He bent over it for a few moments and then straightened up.

"Where is the operator?" he asked.

Carnes silently led the way to the edge of the roof and pointed down. Dr. Bird leaned over. At the foot of the fire escape he saw a crumpled dark heap, with a secret service operative bending over it.

"Is he dead, Olmstead?" called Carnes.

"Dead as a mackerel," came the reply. "Richards got

him through the head on his first shot."

"Good business," said Dr. Bird. "We probably could never have secured a conviction and the matter is best hushed up anyway. Bolton, have two of your men help me get this apparatus up to the Bureau. I want to examine it a little. Have the body taken to the morgue and shut up the press. Find out which room the chap occupied and search it, and bring all his papers to me. From a criminal standpoint, this case is settled, but I want to look into the scientific end of it a little more."

"I'd like to know what it was all about, Doctor," protested Bolton. "I have followed your lead blindly, and now I have a housebreaking without search-warrant and a killing to explain, and still I am about as much in the dark as I was at the beginning."

"Excuse me, Bolton," said Dr. Bird contritely; "I didn't mean to slight you. Admiral Clay wants to know about it and so does Carnes, although he knows me too well to say so. As soon as I have digested the case I'll let you know and I'll go over the whole thing with you."

A week later Dr. Bird sat in conference with the President in the executive office of the White House. Beside him sat Admiral Clay, Carnes and Bolton.

"I have told the President as much as I know, Doctor," said the Admiral, "and he would like to hear the details from your lips. He has fully recovered from his malady and there is no danger of exciting him."

"I cannot read Russian," said Dr. Bird slowly, "and so was forced to depend on one of my assistants to translate the papers which Mr. Bolton found in Stokowsky's room. There is nothing in them to definitely connect him with the Russian Union of Soviet Republics, but there is little doubt in my mind that he was a Red agent and that Russia supplied the money which he spent. It would be disastrous to Russia's plans to have too close an accord between this country and the British Empire, and I have no doubt that the coming visit of Premier McDougal was the underlying cause of the attempt. So much for the reason.

"As to how I came to suspect what was happening,

the explanation is very simple. When Carnes first told me of your malady, Mr. President, I happened to be checking Von Beyer's results in the alleged discovery of a new element, lunium. In the article describing his experiments, Von Beyer mentions that when he tried to observe the spectra, he encountered a mild form of opthalmia which was quite stubborn to treatment. He also mentions a peculiar mental unbalance and intense exhilaration which the rays seemed to cause both in himself and in his assistants. The analogy between his observations and your case struck me at once.

"For ages the moon has been an object of worship by various religious sects, and some of the most obscene orgies of which we have record occurred in the moonlight. The full moon seems to affect dogs to a state of partial hypnosis with consequent howling and evident pain in the eyes. Certain feeble minded persons have been known to be adversely affected by moonlight as well as some cases of complete mental aberration. In other words, while moonlight has no practical effect on the normal human in its usual

concentration, it does have an adverse effect on certain types of mentality and, despite the laughter of medical science, there seems to be something in the theory of 'moon madness.' This effect Von Beyer attributed to the emanations of lunium, which element he detected in the spectra of the moon, in the form of a wide band in the ultra-violet region.

"I obtained from Carnes a history of your case, and when I found that your attacks grew violent with the full moon and subsided with the new moon, I was sure that I was on the right track, although I had at that time no way of knowing whether it was from natural or artificial causes that the effect was being produced. I interviewed Admiral Clay and found that you were suffering from a form of dermatitis resembling sunburn, and that convinced me that an attack was being made on your sanity, for an excess of ultra-violet light will always tend to produce sunburn. I inquired about the windows of your solarium, for ultra-violet light will not pass through a lead glass. When the Admiral told me that the glass had been replaced with fused quartz, which is quite permeable



to ultra-violet and that the change had been almost coincident with the start of your malady, I asked him to get you out of the solarium and let me examine it.

"By means of certain fluorescent substances which I used, I found that your pillow was being bathed in a flood of ultra-violet light, and the fluoro-spectroscope soon told me that lunium emanations were present in large quantities. These rays were not coming to you directly from their source, but one of the windows of the State, War and Navy Building was being used as a reflector. I located the approximate source of the ray by means of an improvised apparatus, and we surrounded the place. Stokowsky was killed while attempting to escape. I guess that is about all there is to it."

"Thank you, Doctor," said the President. "I would be interested in a description of the apparatus which he used to produce this effect."

"The apparatus was quite simple, Sir. It was merely a large collector of moonlight, which was thrown after collection onto a lunium plate. The resultant

emanations were turned into a parallel beam by a parabolic reflector and focused, through a rock crystal lens with an extremely long focal length, onto your pillow."

"Then Stokowsky had isolated Von Beyer's new element?" asked the President.

"I am still in doubt whether it is a new element or merely an allotropic modification of the common element, cadmium. The plate which he used has a very peculiar property. When moonlight, or any other reflected light of the same composition falls on it, it acts on the ray much as the button of a Roentgen tube acts on a cathode ray. As the cathode ray is absorbed and an entirely new ray, the X-ray, is given off by the button, just so is the reflected moonlight absorbed and a new ray of ultra-violet given off. This is the ray which Von Beyer detected. I thought that I could catch traces of Von Beyer's lines in my spectroscope, and I think now that it is due to a trace of lunium in the cadmium plating of the barrels. Von Beyer could have easily made the same mistake. Von Beyer's work, together with Stokowsky's opens up an entirely new

field of spectroscopic research. I would give a good deal to go over to Baden and go into the matter with Von Beyer and make some plans for the exploitation of the new field, but I'm afraid that my pocketbook wouldn't stand the trip."

"I think that the United States owes you that trip, Dr. Bird," said the Chief Executive with a smile. "Make your plans to go as soon as you get your data together. I think that the Treasury will be able to take care of the expense without raising the income tax next year."